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AN ECONOMIC VIEW OF JAPAN'S CHANGING DEMOGRAPHICS: NOT ENOUGH BABIES?

Summary

Japan's demographic composition is changing very quickly by historical standards. The rapid increase in its elderly population has significant implications for the savings rate as well as government-financed social welfare programs and tax revenues. Equally important, Japanese women are having fewer babies; that could affect the ability of tomorrow's work force to support the increased ranks of elderly.

If present trends continue, the labor force in Japan is likely to begin shrinking early in the next century at the latest and the population to decline within the next 25 years. One consequence is likely to be slower economic growth than otherwise and increased demand for capital in the face of a possible slowing of the savings rate. As a result, the outflow of capital from Japan could decline, with implications for interest rates in the United States.

The "birth dearth" has become a matter of national debate in Japan. Some argue for countermeasures. Others suggest that the birthrate is not extraordinarily low compared to other industrialized countries and may even carry many benefits. These analysts argue, in essense, that no problem exists.

Introduction

Mark Twain once noted in a flight of fancy that, given then current trends, the lower Mississippi River eventually would be only a mile and three-quarters long. Recent statistics on population trends in Japan would confirm

the American humorist's view of extrapolation. A Japanese publication this year estimated that the so-called birth dearth in Japan, if unchecked, would lead to a population of 45,000 by the year 3000, a 99.96 percent reduction.

For Japanese policymakers, however, the phenomenon is no laughing matter. As in many other countries, a growing population frequently is seen as a source of national vitality. Japanese leaders from Prime Minister Toshiki Kaifu on down have called for a study of national countermeasures. The source of their concern is encapsulated in a single statistic, the release of which led to the "1.57 shokku" earlier this year. The figure, technically known as the total fertility rate, refers to the number of children a woman is expected to bear over her lifetime. A value of 2.1 is considered the long-run break-even point to sustain a nation's population unless there is immigration. Of course, a relatively young population can grow for decades even with a figure below 2.1, but a country's population eventually will shrink if the figure approaches 2 children per woman. Hence, the fear in Japan is that its population, which still is growing in absolute numbers, eventually will level off and then decline in size.

Japan's fertility rate has been below 2.1 for nearly 20 years so 1989's suboptimal figure came as no surprise. What shook Japanese leaders was the relatively big decline (5.4 percent) in the number at a time when one of the country's major economic concerns is a long-run shortage of labor. Japan's fertility rate is lower than that of most other industrial nations (see Table 1). Obviously, a falling fertility rate suggests that a stable -- or declining -- population will arrive sooner rather than later. The Ministry of Health and Welfare's latest midrange estimate (made in 1986) indicated a population of

Table 1: Fertility Rates in Industrial Countries, 1965-89

(expected births per woman*)

	1965	1970	1975	1980	1985	1986	1987	1988	1989
Japan	2.14	2.13	1.91	1.75	1.76	1.72	1.69	1.66	1.57
United States	2.93	2.48	1.77	1.84	1.84	1.84	1.87	1.93	n.a.
Sweden	2.42	1.94	1.78	1.68	1.73	1.79	1.84	1.96	2.02
Great Britain	2.85	2.45	1.81	1.89	1.80	1.78	1.81	1.83	n.a.
France	2.84	2.47	1.93	1.95	1.82	1.84	1.82	1.82	n.a.
West Germany	2.50	2.02	1.45	1.45	1.28	1.35	1.38	1.40	n.a.

*The average number of births that a woman would have in her lifetime if, at each year of age, she experienced the birthrates occurring in the specified year.

Sources: Ministry of Health and Welfare (Japan), National Center for Health Statistics and Department of Commerce, Census Bureau (United States), United Nations, Council of Europe and other national sources.

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135.9 million in the year 2015 (see Table 2). This year Nihon University Population Research Center predicted the population would peak in 2012 at 131.5 million. September estimates by Sanwa Bank, Ltd. put the peak even earlier -- 126.9 million in 2005 -- based on the most recent fertility rate. (As of October 1, 1990 Japan's population was estimated at 123.7 million.) Judging by these various forecasts, Japan could be only 15 years away from a declining population and perhaps even closer should the fertility rate drop further.

Table 2: Japan's Past and Projected Population, 1920-2025

October 1	Population (thousands)	Age Distribution		
		0-14 Years	15-64 Years	65 and Over
1920	55,963	36.5%	58.2%	5.3%
1930	64,450	36.6	58.6	4.8
1940	71,933	36.7	58.5	4.8
1950	83,200	35.4	59.7	4.9
1955	89,276	33.4	61.3	5.3
1960	93,419	30.0	64.3	5.7
1965	98,275	25.6	68.1	6.3
1970	103,720	23.9	69.0	7.1
1975	111,940	24.3	67.8	7.9
1980	117,060	23.5	67.4	9.1
1985	121,049	21.6	68.2	10.2
1988	122,783	19.5	69.2	11.2
1989	123,255	18.8	69.6	11.6
1990	124,225	18.6	69.4	11.9
1995	127,565	17.5	68.3	14.1
2000	131,192	18.0	65.8	16.3
2005	134,247	18.7	63.2	18.0
2010	135,823	18.6	61.4	20.0
2015	135,938	17.6	59.9	22.5
2020	135,304	16.5	59.9	23.6
2025	134,642	16.4	60.2	23.4

Note: Figures for 1920-85 are from the national census conducted at five-year intervals. Figures for 1988 and 1989 are estimates. Figures for 1990-2025 are from Ministry of Health and Welfare, "Future Population Projection for Japan," December 1986. By comparison, the Management and Coordination Agency estimated the October 1990 population at 123,680,000.

Sources: Management and Coordination Agency and Ministry of Health and Welfare

Japan's experience, however, may not be unique among industrial nations. Table 1 highlights both the similarities and the differences in fertility rates. While Japan's fertility rate has been consistently among the lowest, rates declined faster elsewhere during the 1970s with the result that fertility levels were very similar among most industrial nations by 1985. Since then, however, rates have risen in the United States, Sweden, Great Britain and West Germany, while those in Japan have continued declining. (The French figure has

remained fairly stable.) Furthermore, some nations -- such as the United States -- experience significant net immigration, creating a potential divergence between fertility rates and long-run population trends.

Older Japanese can remember a very different environment than that suggested by Table 1. In 1950 the fertility rate was 3.65, which, when combined with the most recent figures, suggests that Japanese families in the future are likely to have fewer than half as many children as they did at the dawn of the postwar era. Japan's population increase of 0.38 percent in 1989 was the smallest peacetime rate of growth ever recorded in data going back to 1872; the 1.2 million live births were the lowest number in the 20th century. During the 1920s and the 1930s, when the population was little more than half the present size, live births consistently were above 2 million per year.

The plummeting birthrate is at best only half the demographic equation affecting Japan. Although that country currently has a population slightly younger than the United States, it is aging very rapidly. Fewer babies than expected obviously pulls up the average age, but Japanese also are living longer and experiencing the delayed effect of high birthrates generations ago. Nihon Keizai Kyoiku Senta (Center for Economics Education) has compared the data from Table 2 with other national data to make this point. For example, Japan's over-65 population reached 7.1 percent of the total in 1970, 25 years after the U.S. population had the same characteristic. In 1995, however, that age group will represent 14.1 percent of the population, 15 years before the United States. (As noted previously, the U.S. composition is affected by immigration.)

Putting the same argument another way, 10.2 percent of the population in 1985 was over 65; conservative Ministry of Health and Welfare estimates put the share at 23.6 percent in 2020. By contrast, 11.9 percent of the U.S. population was over 65 in 1985; by 2020 this figure is predicted to rise to 17.3 percent. According to the center's data for the six nations listed in Table 1, between 1985 and the turn of the century Japan will move from having the youngest average age to being second only to Sweden in the size of its older population; by 2020 it will pass Sweden on this basis.[1] (For further details of Japan's aging population, see JEI Report No. 12A, March 27, 1987. For a more recent discussion that concentrates on the pension dimension of the phenomenon, see JEI Report No. 21A, May 25, 1990.)

Japan obviously can do little about the increasing ranks of elderly. In many ways, in fact, the ability of many Japanese to live to an advanced age is a tribute to the high standard of living that Japan has obtained in a relatively short time. Japanese now have the longest life expectancy on earth, with Japanese girls born in 1989 expected to live 81.8 years on average and boys 75.9 years. A Japanese man at age 60 can look forward to nearly 20 years of retirement should he leave the labor force at that age. With the government picking up at least part of the health care tab of maintaining people in old age, having fewer young people to replenish the ranks of those leaving the labor force obviously increases the tax burden on the working population. Hence, for strictly budgetary reasons, some Tokyo officials have advocated seeking ways to boost the birthrate.

[1]Nihon Keizai Kyoiku Senta, Koreika Shakai to Kokumin Futanritsu no Hanashi (Tokyo: Keizai Kyoiku Senta, September 1990), p. 3.

Why Has Japan's Birthrate Been So Low?

Increasing Japan's birthrate first requires understanding why it is lower than elsewhere and why it has trended down for the last 20 years; neither is an easy proposition. Finance Minister Ryutaro Hashimoto got himself in hot water with women's groups and editorialists at the New York Times earlier this year when he was reported to have suggested at a cabinet meeting that "the source of the problem is the spread of higher education among women." Despite the protests of Japanese women's groups, the argument is not totally without merit as a partial explanation.[2] Higher levels of education naturally lead to higher income than otherwise, thereby increasing the money that a Japanese woman would forgo were she to have children and leave the labor force for a prolonged period. Some Japanese families, like their American counterparts, could be expected to opt for income over children. Of course, few people would suggest seriously that the "solution" is less education for Japanese women.

As in America, however, the educated woman in pursuit of a career finds that improved child-care facilities ease the compromise between children and career. A Ministry of Health and Welfare survey that asked women why they were having so few babies found that the largest number of respondents, 36.6 percent of the total, gave the high cost of child care as a reason. Other reasons given by women in the same poll illustrate further aspects of the problem. The high cost of each child's education was given as a factor by 29.6 percent, the physical and the emotional burdens of child-rearing by 25.3 percent, the lack of household space by 15.9 percent and harm to careers by 14.4 percent.

For Americans these explanations resonate with widely held perceptions of Japanese life. Compared to this country, Japanese schooling -- particularly secondary education -- appears expensive, involving, for example, extra payments for juku (extra schooling to pass examinations or learn what would be elective subjects in the United States). Tuition payments past the ninth grade or for private schools and the psychological stress to parent and child as a result of demanding study schedules also carry costs. (For details on Japan's education system and a discussion of reform proposals, see JEI Report No. 45A, November 30, 1990.) Sensing the connection between the cost of kindergarten and the low birthrate, officials in northern Japan's Akita prefecture announced in November they would create a new program to ease the cost of kindergarten for a couple's third child. (Akita lost an estimated 1.8 percent of its population between 1980 and 1989, the largest percentage decline among Japan's 47 prefectures.)

Japanese housing undeniably is cramped to the point of affecting lifestyles significantly. (For details see JEI Report No. 30A, August 4, 1989.) Additionally, parks and playgrounds are scarce, particularly in urban areas. Transportation and other public facilities often are poorly suited to families with young children.

[2]At least one Japanese specialist, Noriko Tsuya, an American-educated sociologist, acknowledges the importance of this factor, albeit indirectly, in an article in a popular Japanese business weekly. To her, however, higher education for women does not constitute a "problem." See Noriko Tsuya, "Kodomo-o Umu Umanai-wa Kojin no Sentaku," Ekonomisuto, August 7, 1990, p. 50.

Significantly longer working hours, commuting times and corporate socializing for Japanese workers compared to their counterparts in other industrial countries reduce the amount of time couples are together, with obvious implications. In addition, the parent working under these conditions -- typically the father -- has a proportionately reduced role as a care-giver, increasing the burden on the mother. These same time requirements obviously make it more difficult for a young mother to work outside the home herself, absent a helpful spouse. One of Japan's most influential business leaders, Eiji Suzuki, the head of Nikkeiren (Japan Federation of Employers' Associations), has linked conditions of work and the low birthrate, arguing, among other things, for "a desperate exploration by both the corporation and the individual to prepare an environment in which women can bring up children."

Compared to their counterparts in other industrial countries, Japanese women are far more likely to leave the labor force for a prolonged period after they give birth. In addition to the lack or expense of child-care facilities, young couples have to contend with societal views that discourage mothers with young children from working. Some women no doubt respond to this problem by remaining childless longer.

Of course, the joy of having children, if the burdens can be overcome, is as great in Japan as elsewhere. In addition, Japanese parents traditionally have been able to anticipate a concrete benefit: care in old age from a child or child's spouse with whom one lives. However, this expectation probably is diminishing; increasing numbers of elderly either are living with only their spouse or alone. The number of people over 60 living with their married or unmarried children declined from 67 percent in 1980 to 59 percent in 1988, the latest year for which Health and Welfare Ministry data are available. Similar data spanning longer time periods suggest that the trend away from extended families living together has been under way for decades.

Changing educational levels and career paths may interact with another pattern that many experts identify as a primary cause of lower birthrates in other industrial countries. Japanese couples are getting married later (see Table 3). The average age of marriage for Japanese women increased from 24.5 in 1974 to 25.8 in 1989; for men the corresponding figures were 26.8 and 28.5. At a minimum, later marriage postpones population growth. In 1950 the average

Table 3: Marital Status of Young Women in Industrial Countries, 1950-80

(percentage of women between 20 and 24 who are unmarried)

	1950	1960	1970	1980
Japan	55.2%	68.3%	71.7%	77.7%
United States	32.3	28.4	36.3	51.3
Sweden	59.7	57.5	60.0	83.3
Great Britain	52.5	42.0	41.2	53.7
France	49.9	54.3	50.6	51.4
West Germany	67.6	54.6	41.6	60.1

Source: Ministry of Health and Welfare

age of a mother having a first child was 24.4 years; by 1988 the age had risen to 26.9 years. In addition, fewer years of marriage during the main childbearing years may reduce the average number of children, especially if, as is the case in Japan, it is rare for a child to be born illegitimately.[3]

Taken together, these factors suggest that, on objective criteria alone, Japan could be expected to have a relatively low birthrate. In other words, Japanese families well may have made a rational calculation of the costs and the benefits of having children. From the foregoing, it is clear that the costs (for example, forgone income, educational and child-rearing expenses and the need for more expensive housing) generally are high compared to other industrial nations; moreover, they have risen over the past 20 years. Conversely, some of the benefits, such as the possibility of receiving care in old age from one's child or child's spouse, have declined in the postwar period. Two offsetting factors are higher real incomes, which should make children more affordable, and longer lives, which make having an old-age care-giver a more attractive option -- if the elderly can get their child's family to oblige. Countermeasures, if deemed necessary, would have to alter family cost-benefit calculations.

Consequences of Japan's Falling Birthrate

Individual families are not the only ones to save money from having fewer children. The need diminishes for educational facilities, for example. Japan has been reducing the number of kindergartens since 1985. As the birthrate has continued to fall, Education Ministry officials have scaled back their projections for school needs at all levels. One estimate put the education savings at about 1 percent of gross domestic product by the year 2000 as compared to the requirements in 1980.[4]

Given Japan's increasing numbers of elderly, the birth dearth has had a positive economic effect up to now. Social obligations, governmental or personal, to the elderly can be handled more easily if fewer children compete for such resources. To date, the reduced number of children has more than offset the increased number of elderly, alleviating the net burden on the working population (Table 2). In fact, the 15-64 age group, which roughly corresponds to the potential labor force, stood at an all-time high as a percentage of the population in 1989. To put the argument differently, Japan's dependency ratio (those below age 15 or 65 and over as a percentage of the population) was at an historic low.

The dependency ratio has fallen partly because the group between 15 and 65 has grown substantially in recent years. As indicated in Table 1, Japan had

[3]Abortion does not appear to be a factor in Japan's low birthrate, widespread impressions notwithstanding. According to the New York City-based Alan Guttmacher Institute, Japan reported 18.6 abortions per 1,000 women of childbearing age in 1987, the latest year for which comprehensive data are available; the comparable figure for the United States was 26.9.

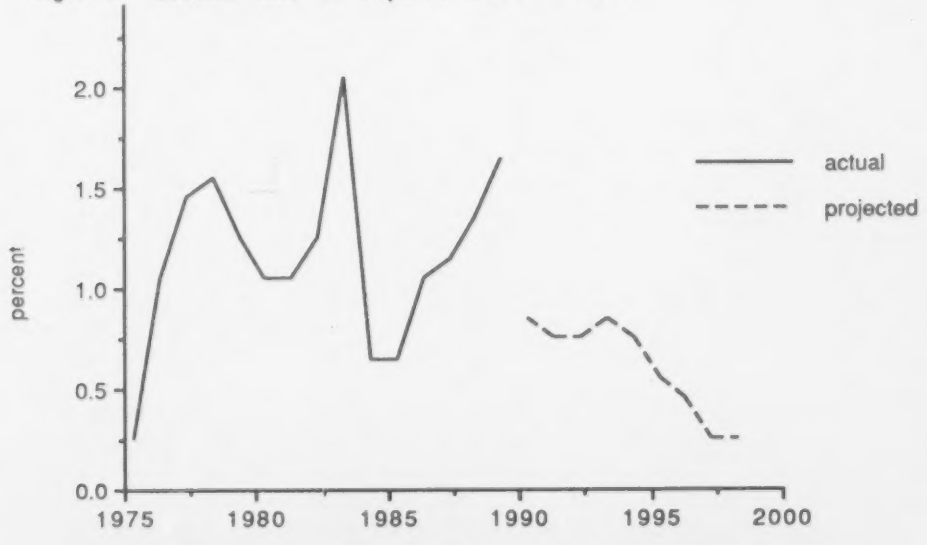
[4]Peter Heller et. al., Aging and the Social Expenditure in the Major Industrial Countries: 1980-2025 (Occasional Paper 47) (Washington: International Monetary Fund, September 1986), Table 14.

relatively high birthrates in the 1970s, especially between 1971 and 1974, a period when the phenomenon was called the second baby boom. (The first baby boom in Japan lasted from 1947 to 1949.) Since 1979 Japan's population of 18-year-olds has increased dramatically, going from 1,580,000 to 1,930,000 in 1989, a jump of 22.2 percent. Even though many delay their entry into the labor force to pursue further education, their sheer numbers have helped keep the growth of the labor force high and the dependency ratio low.

Delayed childbirth probably is another factor that has swelled the size of the labor force. Young women are likely to remain employed if they do not have children, other factors equal. The causality also could be reversed -- high labor force participation rates and greater career opportunities for women are likely to lead to delayed marriage and childbirth. For whatever reason, young women are far more likely to work outside the home than just a few years ago. The increased participation rate of women between 20 and 29 in the labor force added over 200,000 people to the total between 1984 and 1988 and accounted for more than 9 percent of the growth of the labor force, based on Management and Coordination Agency data. (This number is in addition to those who would have been added had the participation rate remained at 1984 levels.) Hence, the very factor that may reduce the size of the labor force -- fewer babies -- also may be swelling it.

However, the long run may be about to catch up with Japan. The lower birthrates of recent years will begin shrinking the pool of 18-year-olds after 1992, when their number is expected to peak at 2.1 million. By the year 2000 the number in this age group will shrink 26.3 percent from its peak to 1.5 million. Depending on participation rates, the labor force after the mid-1990s either will grow much more slowly or decline. Figure 1 shows the estimates made

Figure 1: **Growth rate of Japan's Labor Force**



Note: The sharp drop in 1984 and 1985 was partly from an unusually low number of births in 1966, which, according to the Chinese zodiac; was an usually unlucky year that occurs at 60-year intervals.

Source: Management and Coordination Agency (actual figures), and Ministry of Health and Welfare (estimates for 1990-98), as cited in Rodo Hakusho (1990 Labor White Paper)

by the Health and Welfare Ministry in 1986 along with the actual rates of growth in the labor force through 1989. As the figures hint, the labor force can grow faster than expected if the participation rate of the population rises. The increasing shortage of labor in Japan already may have induced more housewives, students and older persons to enter or remain in the labor force in the 1987-89 period than otherwise would have been true. (As an indication of the labor market tightness, the job-opening ratio stood at 1.25 in 1989, the highest average annual rate since 1973. During the first half of the 1980s the rate averaged only 0.66.)

While the Health and Welfare Ministry's data in Figure 1 show a slowing but still positive rate of growth in the labor force during the latter part of this decade, other data paint a different picture. Sanwa Bank, for example, believes that the labor force will hit a peak of 61.3 million in 1996 and then begin declining at an annual rate of 0.6 percent, reaching 51.6 million by 2025.

If Japan's labor force grows more slowly, so will its economy, other factors equal. A shrinking labor pool could be offset by increased hours per worker, but official policy and worker preference argues for just the opposite trend: diminishing hours per worker. Recent Ministry of Labor calculations suggest that the growth of labor inputs (the size of the labor force and hours per worker) has accounted for about half the growth in the Japanese economy in recent years (see Table 4). If so, a hypothetically stable labor force would result in Japan's gross national product growing about 2 percentage points less rapidly toward the end of this decade than it did at the beginning, other factors equal.

Of course, the composition of the labor force also matters. Like the population, it is aging fairly rapidly (see Figure 2). While the decline in

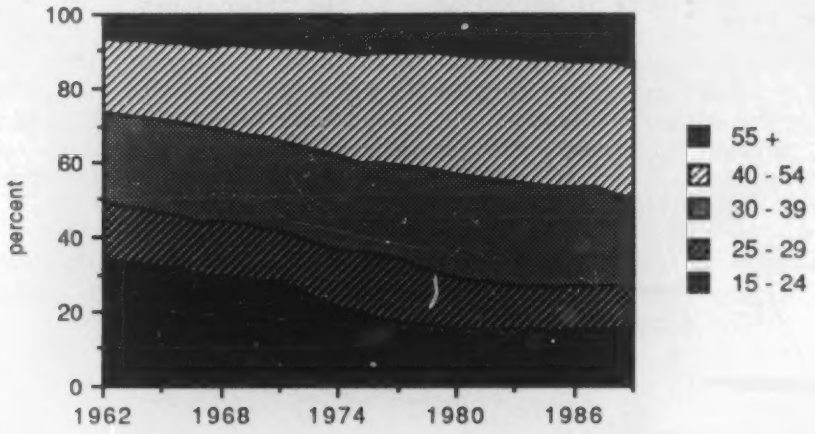
Table 4: Contributions of Labor and Capital to Japan's Real Economic Growth, 1965-88

	Real GNP Growth Rate		Contribution*	
	Actual	Simulated	Capital Stock	Labor Inputs
1965-73	9.8%	11.2%	7.8%	3.4%
1973-75	0.6	-1.2	3.5	-4.7
1975-77	5.1	7.2	2.7	4.6
1977-80	4.9	4.2	2.3	1.9
1980-83	3.3	4.3	2.1	2.3
1983-85	5.0	3.6	2.8	0.9
1985-86	2.5	3.1	1.9	1.2
1986-88	5.2	4.0	2.0	2.0

*Based on simulated GNP growth rate, the hypothetical growth rate that is based primarily on the counterfactual assumption that capital and labor inputs are the only determinants of GNP growth and are perfectly measured. Therefore, differences between actual and simulated GNP arise primarily from measurement error, changing factor productivities and factors other than capital and labor.

Source: Ministry of Labor, Rodo Hakusho (Tokyo: Nihon Rodo Kenkyu Kiko, 1990), p. 415.

Figure 2: **Percentage of Japanese Workforce by Age**



Source: Ministry of Labor

very young workers has leveled off in recent years, the ranks of older workers have continued to increase significantly as a percentage of the labor force and in absolute numbers. This is another reason for believing that the labor force will decline in absolute size; these oldsters cannot go on forever. They can give it a good try, however; older Japanese workers are far more likely to work than their counterparts in other industrial countries or even those in South Korea.[5]

Up to a point older workers are likely to be more productive than their younger counterparts, who lack the same on-the-job training. However, blue-collar workers may hit their peak productivity before white-collar workers. This argument suggests that the aging of the work force may correlate with an increase in productivity for white-collar workers compared to their blue-collar colleagues.

The figures in Table 4 hint at another possibility regarding the growth and the composition of the Japanese economy. Certainly, a smaller labor force by the early part of the next century at the latest is likely to result in upward wage and salary pressure. Such pressure may create incentives for Japanese employers to use their labor force -- including women workers who made up 40.1 percent of the total as of 1988 -- far more productively. (For details of how Japanese women participate in the labor force, see JEI Report No. 18A, May 5, 1989.) Higher wages will make the substitution of capital for labor more likely. While the visions held by some experts of robots replacing a diminishing supply of young workers for manual jobs may be farfetched, capital accumulation clearly can be a powerful means of maintaining economic growth in the face of a slowly growing, or even shrinking, labor force. The figures in

[5]For data on this phenomenon as well as a discussion of employment practices regarding older workers, see Marcus E. Rebick, "After-Lifetime Employment in Japan," A paper presented to Japan Economic Seminar, November 16, 1990. Rebick's data seem to suggest that a simple extension of the retirement age in Japan would do little to reverse the decline in the growth of the labor force since, after retirement, workers often move to a different job.

Table 4 suggest that, if Japanese businesses were to maintain spending on plant and equipment at levels sufficient to sustain the growth of the capital stock at 1986-88 rates, real economic growth could exceed 2 percent a year even if the labor force stabilized in size.

As Japan's population ages, social demands on the capital market are likely in addition to demands resulting from corporate incentives to increase the plant and equipment spending. One researcher has estimated, for example, that demographic changes could add 5.41 percentage points to pension expenditures and 0.67 point to health expenditures as a percentage of GDP by the year 2000 compared to 1980.[6]

Such demands for capital could pull up interest rates, possibly diverting to the home market what in earlier times would have been overseas capital flows. Such a scenario raises an additional question: Will Japan's savings suffice to finance such investment? A great deal will depend on the other tail of the demographic distribution: the elderly. If the aged dissave and require increased government transfer payments as well, then a declining national savings rate could collide with a rising demand for investment. However, an increasing number of experts believe that tomorrow's elderly Japanese will not dissave significantly but will opt to maintain their savings in order to leave a bequest to their heirs. If so, the savings-investment crunch could be avoided or minimized.

Conclusion

Should Japan's outbound capital flows diminish significantly, Americans will feel the impact. Absent major further progress on reducing the federal budget deficit or an unlikely spurt in personal savings, the United States is likely to remain a net importer of capital, with Japan being the largest supplier. (Payments to America's own aging population will create new demands on capital markets early in the next century.) Should Japan's capital requirements rise considerably over the next few years as a result of demographic factors or for other reasons, U.S. interest rates would be nudged higher than otherwise.

Paul Masson of the International Monetary Fund and Ralph Tryon of the Federal Reserve Board have used an econometric model to evaluate the effects of demographic changes in the United States, Japan and other members of the Group of Seven industrial countries, taking account of the interaction of demographic changes in one country on the others (see Table 5). The effects on Japan are dramatic. Compared to the baseline year of 1995, Japan's current account by the year 2000 will be reduced by 2.5 percent of GNP. Assuming that the current account would not otherwise grow from the 2 percent of GNP it equaled in 1989, Masson and Tryon's figures imply a substantial deficit in Japan's current account by the year 2000 arising from demographic factors. In addition, real interest rates first will dip, then rise because of demographic shifts; real GNP will be larger through the year 2000, then progressively smaller.[7]

[6]Heller, op. cit., Table 14.

[7]Paul R. Masson and Ralph W. Tryon, "Macroeconomic Effects of Projected Population Aging in Industrial Countries," IMF Staff Papers, September 1990, pp. 473-474.

Table 5: Effects of Demographic Shifts in Japan and the United States, 2000-2025*

(deviations from 1995 baseline demographic composition)

	2000	2005	2010	2015	2020	2025
			(in percent)			
Japan						
Real GNP	0.4%	-3.1%	-6.4%	-9.5%	-11.8%	-13.2%
Real Interest Rate	-3.3	-1.2	0.6	2.5	4.1	4.8
Capital Stock per Worker	5.1	9.1	10.2	8.3	4.3	-0.5
United States						
Real GNP	-0.1	3.2	4.9	4.7	2.5	-0.1
Real Interest Rate	0.1	-1.1	-1.4	-0.5	1.1	2.9
Capital Stock per Worker	-2.2	-3.1	-1.7	1.2	3.7	4.3
			(as percent of GNP)			
Japan: Current Account	-2.5%	-3.8%	-4.4%	-4.5%	-4.4%	-4.0%
United States: Current Account	1.1	2.5	3.1	3.0	2.8	2.7

*Combined effects of changes in consumption, production and government expenditures resulting from demographic changes in the United States, Japan, West Germany, France, Italy, the United Kingdom and Canada.

Source: Paul R. Masson and Ralph W. Tryon, "Macroeconomic Effects of Projected Population Aging in Industrial Countries," IMF Staff Papers (September 1990), pp. 473-74.

Beyond the possible effects on capital flows, Japan's worsening labor shortage could have other international repercussions not captured in the Masson-Tryon model. If labor is scarce in Japan, economic growth could slow despite a possible increase in capital stock, reducing Japan's global presence compared with the alternative. Yet other means of dealing with the "problem" -- if ultimately that is what it is judged to be -- would raise Japan's global presence. For example, Japanese companies could make increased use of foreign workers, either in Japan through legal or illegal means, or they could accelerate the establishment of overseas subsidiaries.

Many of the ways of adjusting to a relatively small labor force in Japan already are emerging. For example, illegal workers accounted for 5 to 10 percent of the growth of the Japanese labor force in 1989, based on unofficial estimates of the growth of the illegal work force. Plant and equipment spending levels have been at very high levels in 1990, as they were in 1989. Last year, for example, business investment accounted for 19.4 percent of GNP; in the April-June period, the most recent quarter for which data are available, the figure came to 20.8 percent. By comparison, in 1983, the same investment ratio was 14.6 percent.

Many factors, however, remain unknown. Politicians, for example, have yet to tip their hands as to possible countermeasures for the low birthrate. With Japan's early 21st century potential work force already born, the demographic handwriting already is on the wall. Exactly how all the affected groups -- Japanese couples, politicians and companies -- will choose to react remains to be seen.

For further information, contact Douglas Ostrom.

Shawn Guse provided research assistance.

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The views expressed in this report are those of the author and do not necessarily represent those of the Japan Economic Institute.

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